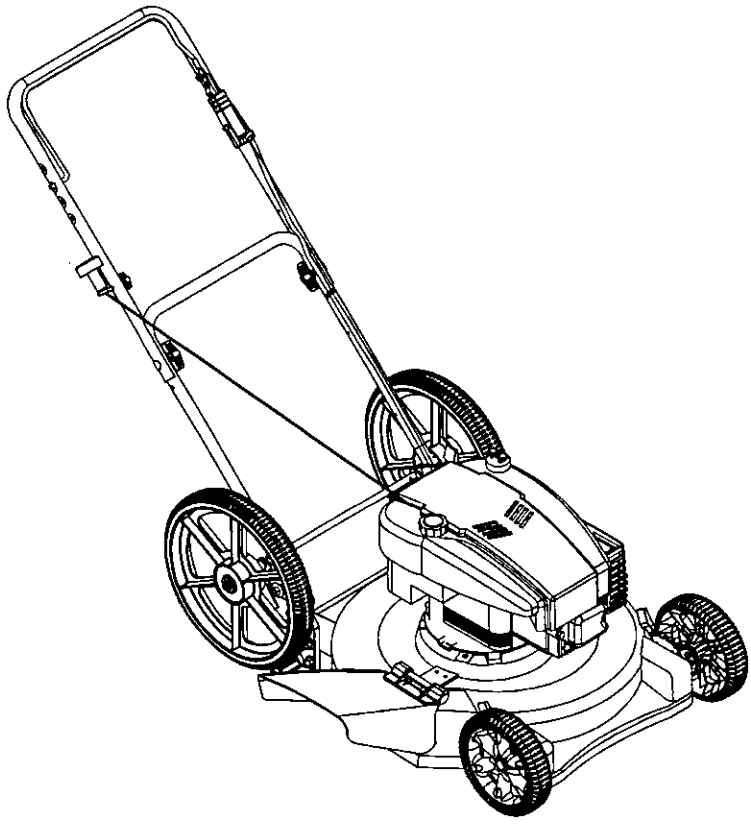
OPERATOR'S MANUAL



22" Hi-Wheel Rotary Mowers Model Series 500 Thru 509

IMPORTANT: Read safety rules and instructions carefully before operating equipment.

Warning: This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester is used, it should be maintained in effective working order by the operator. In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands. A spark arrester for the muffler is available through your nearest engine authorized service dealer or contact the service department, P.O. Box 368022 Cleveland, Ohio 44136-9722.

MTD PRODUCTS INC. P.O. BOX 368022 CLEVELAND, OHIO 44136-9722

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FINDING MODEL NUMBER

This Operator's Manual is an important part of your new lawn mower. It will help you assemble, prepare and maintain the unit for best performance. Please read and understand what it says.

Before you start assembling your new equipment, please locate the model plate on the equipment and copy the information from it in the space provided below. The information on the model plate is very important if you need help from our Customer Support Department or an authorized dealer.

- You can locate the model number by looking down at the rear of the deck. A sample model plate is explained below. For future reference, please copy the model number and the serial number of the equipment in the space below.

(Model Number) (Serial Number)

MTD PRODUCTS INC
CLEVELAND, OHIO 44136

Copy the model number here: _____

Copy the serial number here: _____

CALLING CUSTOMER SUPPORT

If you have difficulty assembling this product or have any questions regarding the controls, operation or maintenance of this unit, please call the Customer Support Department.

Call **1- (330) 220-4MTD** (4683) or **1- (800)-800-7310** to reach a Customer Support representative. Please have your unit's model number and serial number ready when you call. See previous section to locate this information. You will be asked to enter the serial number in order to process your call.

SECTION 1: MAINTAINING SAFETY

This Warning symbol points out important safety instructions which, if not followed, could endanger the personal safety and/or property of yourself and others. Read and follow all instructions in this manual before attempting to operate your lawn mower. Failure to comply with these instructions may result in personal injury. When you see this symbol, heed its warning.

DANGER: Your lawn mower was built to be operated according to the rules for safe operation in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. This lawn mower is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

WARNING: The Engine Exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

General Operation

- Read, understand, and follow all instructions in the operator's manual and on the machine before starting. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
- Only allow responsible individuals familiar with the instructions to operate the machine. Know controls and how to stop the machine quickly.
- Do not put hands or feet under cutting deck or near rotating parts.
- Clear the area of objects such as rocks, toys, wire, etc., which could be picked up and thrown by the blade. A small object may have been overlooked and could be accidentally thrown by the mower in any direction and cause injury to you or a bystander. To help avoid a thrown objects injury, keep children, bystanders and helpers at least 75 feet from the mower while it is in operation. Always wear safety glasses or safety goggles during operation or while performing an adjustment or repair, to protect eyes from foreign objects. Stop the blade(s) when crossing gravel drives, walks or roads.
- Be sure the area is clear of other people before mowing. Stop machine if anyone enters the area.
- Never carry passengers.
- Disengage blade(s) before shifting into reverse and backing up. Always look down and behind before and while backing.
- Be aware of the mower and attachment discharge direction and do not point it at anyone. Do not operate the mower without either the entire grass catcher or the chute guard in place.
- Slow down before turning. Operate the machine smoothly. Avoid erratic operation and excessive speed.
- Never leave a running machine unattended. Always turn off blade(s), place transmission in neutral, set park brake, stop engine and remove key before dismounting.
- Turn off blade(s) when not mowing.
- Stop engine and wait until blade(s) comes to a complete stop before (a) removing grass catcher or unclogging chute, or (b) making any repairs, adjusting or removing any grass or debris.
- Mow only in daylight or good artificial light.
- Do not operate the machine while under the influence of alcohol or drugs.
- Watch for traffic when operating near or crossing roadways.
- Use extra care when loading or unloading the machine into a trailer or truck. This unit should not be driven up or down a ramp onto a trailer or truck under power, because the unit could tip over, causing serious personal injury. The unit must be pushed manually on a ramp to load or unload properly.
- Never make a cutting height adjustment while engine is running if the operator must dismount to do so.
- Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Do not wear loose fitting clothes or jewelry. They can be caught in moving parts. Never operate a unit in bare feet, sandals, or sneakers.
- Check overhead clearance carefully before driving under power lines, wires, bridges or low hanging tree branches, before entering or leaving buildings, or in any other situation where the operator may be struck or pulled from the unit, which could result in serious injury.
- Disengage all attachment clutches, thoroughly depress the brake pedal, and shift into neutral before attempting to start engine.
- Your mower is designed to cut normal residential grass of a height no more than 10". Do not attempt to mow through unusually tall, dry grass (e.g., pasture) or piles of dry leaves. Debris may build up on the mower deck or contact the engine exhaust presenting a potential fire hazard.
- Slope Operation
- Slopes are a major factor related to loss of control and tip-over accidents which can result in severe injury or death. All slopes require extra caution. If

you cannot back up a slope or feel uneasy on it, do not mow it.

- For your safety, use the slope gauge included as part of this manual to measure slopes before operating this unit on a sloped or hilly area. If the slope is greater than 15° as shown on the slope gauge, do not operate this unit on that area or serious injury could result.

Do:

- Mow up and down slopes, not across.
- Remove obstacles such as rocks, limbs, etc.
- Watch for holes, ruts or bumps. Uneven terrain could overturn the machine. Tall grass can hide obstacles.
- Use slow speed. Choose a low enough gear so that you will not have to stop or shift while on the slope. Always keep machine in gear when going down slopes to take advantage of engine braking action.
- Follow the manufacturer's recommendations for wheel weights or counterweights to improve stability.
- Use extra care with grass catchers or other attachments. These can change the stability of the machine.
- Keep all movement on the slopes slow and gradual. Do not make sudden changes in speed or direction. Rapid engagement or braking could cause the front of the machine to lift and rapidly flip over backwards which could cause serious injury.
- Avoid starting or stopping on a slope. If tires lose traction, disengage the blade(s) and proceed slowly straight down the slope.

Do Not:

- Do not turn on slopes unless necessary; then, turn slowly and gradually downhill, if possible.
- Do not mow near drop-offs, ditches or embankments. The mower could suddenly turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.
- Do not mow on wet grass. Reduced traction could cause sliding.
- Do not try to stabilize the machine by putting your foot on the ground.
- Do not use grass catcher on steep slopes.

Children

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the machine and the mowing activity. Never assume that children will remain where you last saw them.

- Keep children out of the mowing area and in watchful care of an adult other than the operator.
- Be alert and turn machine off if children enter the area.
- Before and when backing, look behind and down for small children.
- Never carry children, even with the blades off. They may fall off and be seriously injured or interfere with the safe machine operation.
- Never allow children under 14 years old to operate the machine. Children 14 years and over should only operate machine under close parental supervision and proper instruction.
- Use extra care when approaching blind corners, shrubs, trees or other objects that may obscure your vision of a child or other hazard.
- Remove key when machine is unattended to prevent unauthorized operation.

Service

- Use extreme care in handling gasoline and other fuels. They are extremely flammable and the vapors are explosive.
- Use only an approved container.
- Never remove fuel cap or add fuel with the engine running. Allow engine to cool at least two minutes before refueling.
- Replace fuel cap securely and wipe off any spilled fuel before starting the engine as it may cause a fire or explosion.
- Extinguish all cigarettes, cigars, pipes and other sources of ignition.
- Never refuel the machine indoors because fuel vapors will accumulate in the area.
- Never store the fuel container or machine inside where there is an open flame or spark, such as a gas hot water heater, space heater or furnace.
- Never run a machine inside a closed area.
- To reduce fire hazard, keep the machine free of grass, leaves or other debris build-up. Clean up oil or fuel spillage. Allow machine to cool at least 5 minutes before storing.
- Before cleaning, repairing or inspecting, make certain the blade and all moving parts have stopped. Disconnect the spark plug wire, and keep the wire away from the spark plug to prevent accidental starting.
- Check the blade and engine mounting bolts at frequent intervals for proper tightness. Also, visually inspect blade for damage (e.g., excessive wear, bent, cracked). Replace with blade which meets original equipment specifications.
- Keep all nuts, bolts and screws tight to be sure the equipment is in safe working condition.
- Never tamper with safety devices. Check their proper operation regularly. Use all guards as instructed in this manual.
- After striking a foreign object, stop the engine, remove the wire from the spark plug and thoroughly inspect the mower for any damage. Repair the damage before restarting and operating the mower.
- Grass catcher components are subject to wear, damage and deterioration, which could expose moving parts or allow objects to be thrown. For your safety protection, frequently check components and

replace with manufacturer's recommended parts when necessary.

- Mower blades are sharp and can cut. Wrap the blade(s) or wear gloves and use extra caution when servicing blade(s).
- Check brake operation frequently. Adjust and service as required.
- Muffler, engine and belt guards become hot during operation and can cause a burn. Allow to cool down before touching.
- Do not change the engine governor settings or overspeed the engine. Excessive engine speeds are dangerous.
- Observe proper disposal laws and regulations. Improper disposal of fluids and materials can harm the environment and the ecology.
- Prior to disposal, determine the proper method to dispose of waste from your local Environmental Protection Agency. Recycling centers are established to properly dispose of materials in an environmentally safe fashion.
- Use proper containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them. Properly dispose of the containers immediately following the draining of fluids.
- DO NOT pour oil or other fluids into the ground, down a drain or into a stream, pond, lake or other body of water. Observe Environmental Protection Agency regulations when disposing of oil, fuel, coolant, brake fluid, filters, batteries, tires and other harmful waste.

Your Responsibility

Restrict the use of this power machine to persons who read, understand and follow the warnings and instructions in this manual and on the machine. **Some of the safety labels on the equipment are reproduced below.** Take a moment to study these labels before operating the unit. Always maintain safety while operating or servicing the equipment.

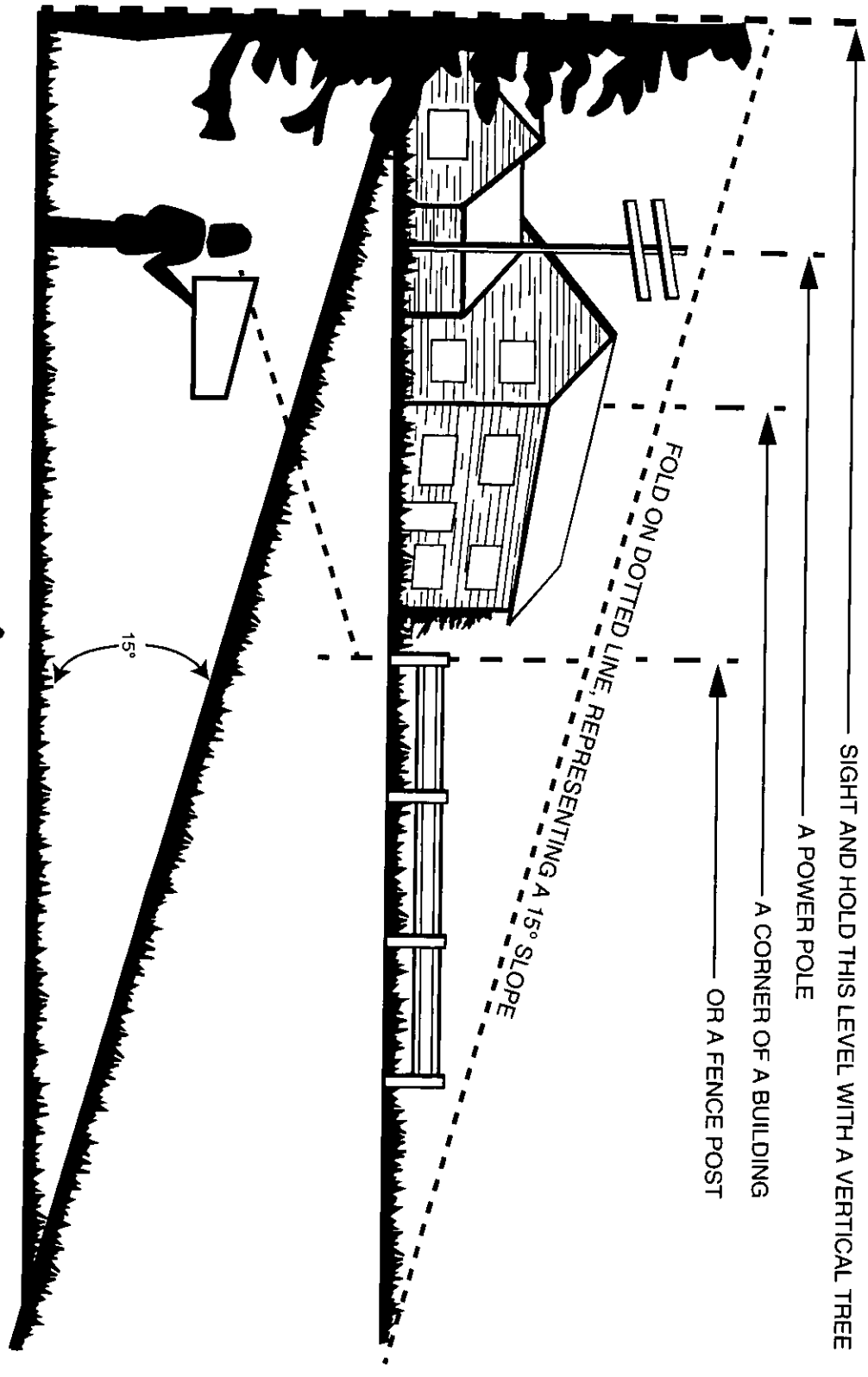
TO REDUCE THE RISK OF INJURY, DO NOT OPERATE MOWER UNLESS DISCHARGE CHUTE COVER OR GRASS CATCHER IS IN ITS PROPER PLACE.
DANGER

DANGER
AVOID SERIOUS INJURY OR DEATH
• KEEP HANDS AND FEET AWAY FROM ROTATING PARTS.
• REMOVE OBJECTS THAT CAN BE THROWN BY THE BLADE IN ANY DIRECTION. WEAR SAFETY GLASSES.
• DO NOT MOW WHEN CHILDREN OR OTHERS ARE AROUND.
• USE EXTRA CAUTION ON SLOPES. DO NOT MOW SLOPES GREATER THAN 15°. MOW ACROSS NEVER UP AND DOWN. NEVER PULL MOWER CLOSE TO YOUR FEET. LOOK DOWN AND BEHIND BEFORE AND WHILE MOVING BACKWARDS.
MAX 15°
READ OPERATOR'S MANUAL. KEEP SAFETY DEVICES (BLADE CONTROL, TRAILING SHIELD, DISCHARGE COVER, ETC.) IN PLACE AND WORKING.

WARNING
5270
TO AVOID THE RISK OF INJURY, NEVER OPERATE MOWER UNLESS SIDE CHUTE DEFLECTOR, MULCH PLUG OR ENTIRE GRASSCATCHER IS IN ITS PROPER PLACE

SECTION 2: SLOPE GAUGE

Use this page as a guide to determine slopes where you may not operate safely. **Do not operate** your lawn mower on such slopes.


SIGHT AND HOLD THIS LEVEL WITH A VERTICAL TREE
A POWER POLE
A CORNER OF A BUILDING
OR A FENCE POST
FOLD ON DOTTED LINE, REPRESENTING A 15° SLOPE
15°

WARNING

Do not mow on inclines with a slope in excess of 15 degrees (a rise of approximately 2-1/2 feet every 10 feet). A riding mower could overturn and cause serious injury. If operating a walk-behind mower on such a slope, it is extremely difficult to maintain your footing and you could slip, resulting in serious injury.

Operate RIDING mowers up and down slopes, never across the face of slopes.

Operate WALK-BEHIND mowers across the face of slopes, never up and down slopes.

SECTION 3: CONTENTS OF HARDWARE PACK

The lawn mower is shipped with following loose parts in the carton. Please remove all loose parts, including the hardware pack, from the carton before discarding it. Compare the contents of the hardware pack with the hardware shown on this page. See Figure 1. The hardware pack may contain extra items which are not used on your unit.

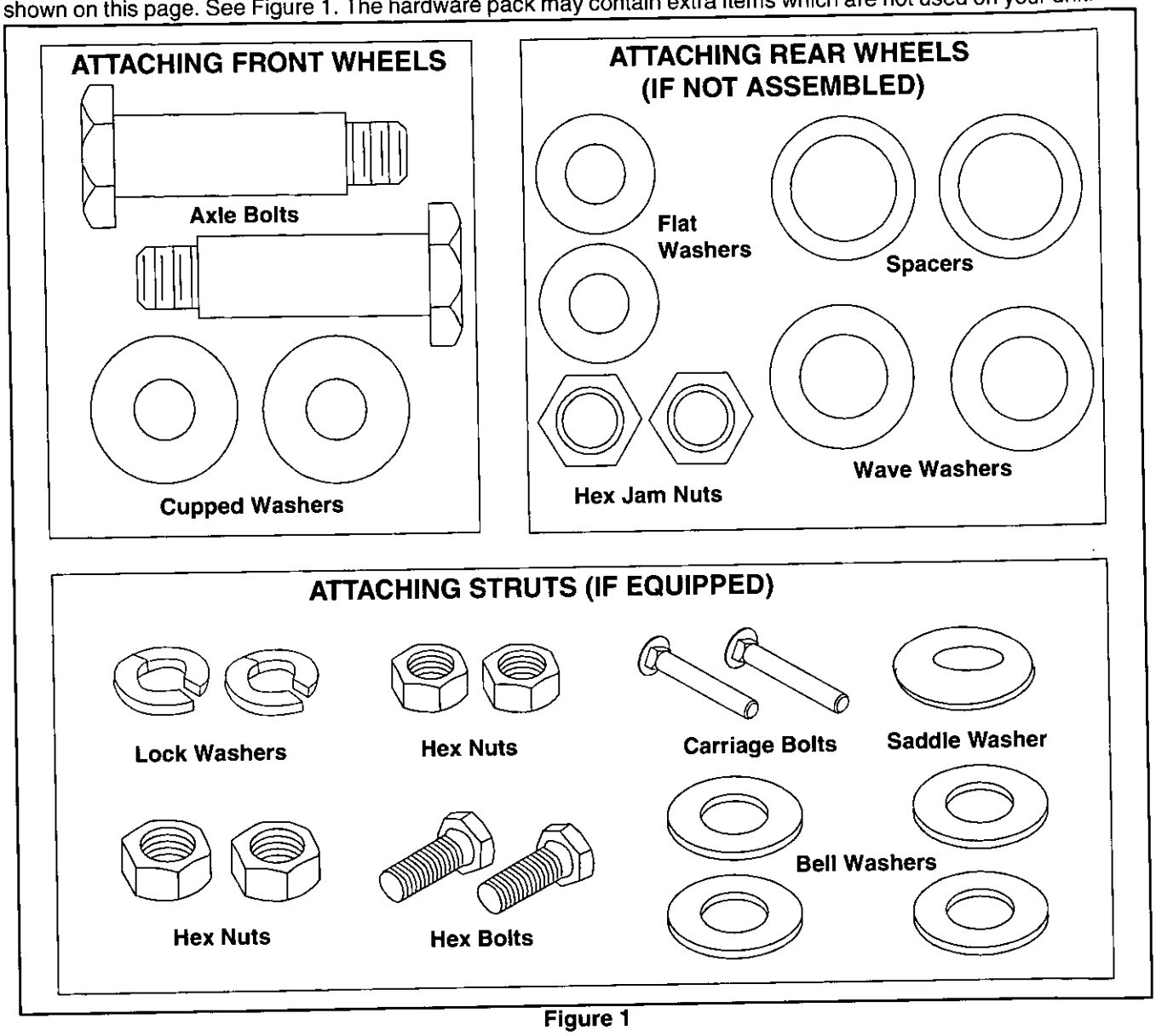


Figure 1

NOTE: *Hardware pieces illustrated here are not drawn to actual size.*

SECTION 4: ASSEMBLING YOUR LAWN MOWER

IMPORTANT: This unit is shipped without gasoline or oil in the engine. Be certain to service engine with gasoline and oil as instructed in the separate engine manual before operating your mower.

NOTE: *Reference to right or left hand side of the mower is observed from the operating position.*

Removing Unit From Carton

- Remove staples, break glue on top flaps, or cut tape at carton end and peel along top flap to open carton.
- Remove loose parts if included with unit (i.e., operator's manual, etc.)
- Cut along corners, lay carton down flat, and remove packing material.
- Roll or slide unit out of carton and check carton thoroughly for loose parts.

Disconnecting Spark Plug Wire

Before setting up your lawn mower, disconnect the spark plug wire from the spark plug and ground to a bolt on the engine. See Figure 2.

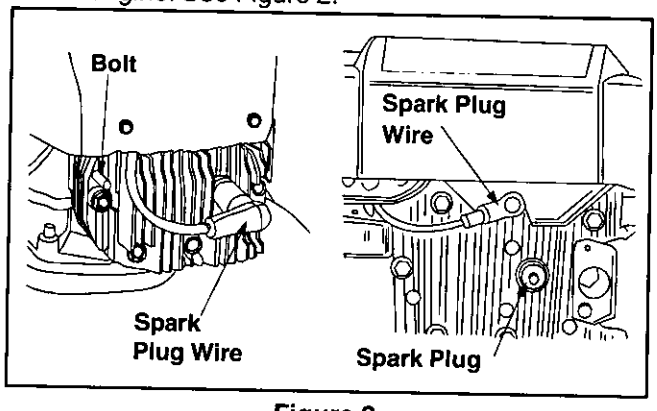


Figure 2

Setting Up Your Lawn Mower

Assembling Handle

- Lift up and pull back on the upper handle to raise the handle into the operating position. Make certain the lower handle is seated securely into the handle bracket assemblies. Tighten the wing nuts on each side of the handle (carriage bolts must be seated properly into the handle). See Figure 3.

NOTE: *Your mower is shipped with the handle in the higher position. If you wish to lower the height of the handle, refer to the Adjustment Section at this time.*

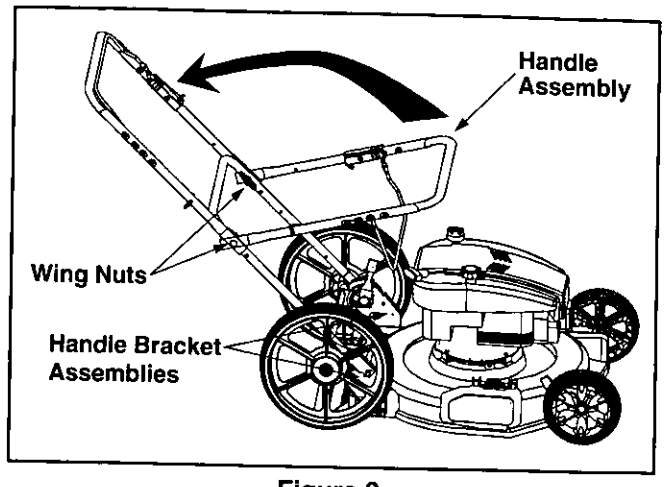


Figure 3

- Remove the hairpin clips from the outer hole in the weld pins on the handle bracket assemblies. Using a pair of pliers, squeeze one leg of the lower handle against the handle bracket assemblies. Insert the hairpin clip into the inner hole on the weld pin. Repeat on other side. See Figure 4.

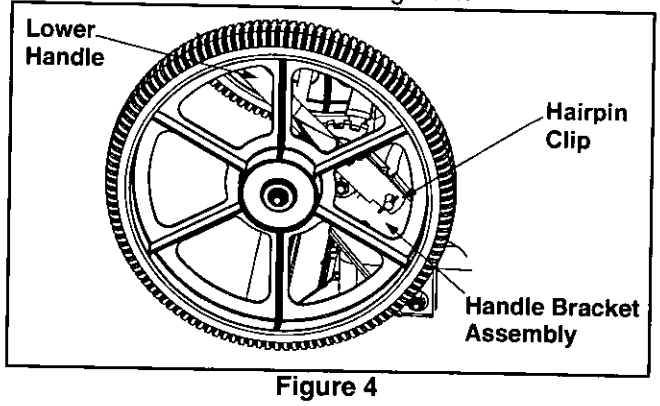


Figure 4

- Fasten the cables to the lower handle with the two cable ties found on the lower handle. Be sure to insert the post on the cable ties into the holes provided on the lower handle. These holes may be found on either the inside or outside of the handles. Pull the cable ties tight and trim off the excess. See Figure 5.

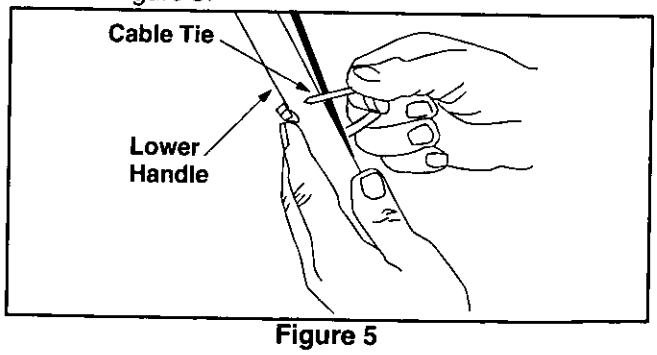


Figure 5

Attaching Starter Rope

- The rope guide is attached to the right side of upper handle. Loosen the wing nut which secures the rope guide. See Figure 6.

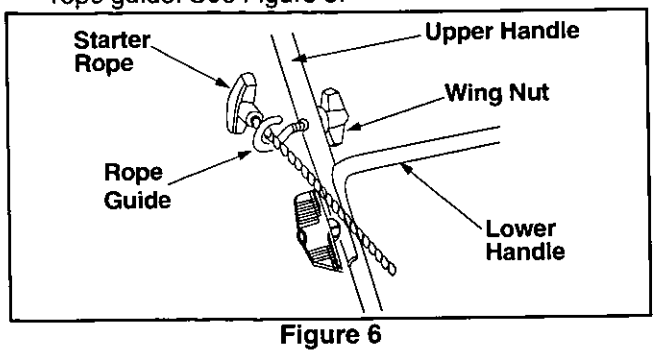


Figure 6

- With the spark plug wire disconnected and grounded, hold the blade control handle against the upper handle, and pull the starter rope out of the engine. Release the blade control handle. Slip the starter rope into the rope guide. Tighten the wing nut.

Installing Front Wheels

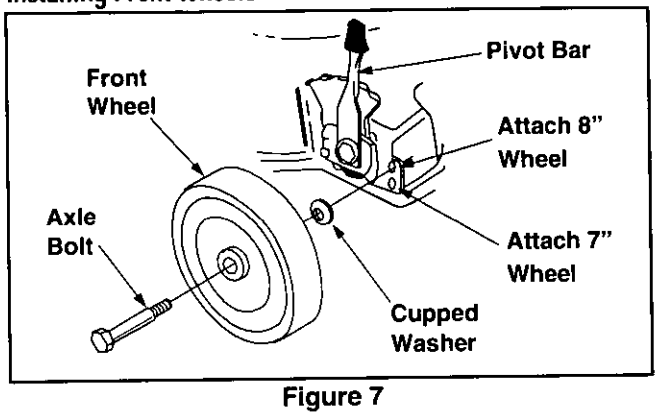


Figure 7

- Block the front of the mower up securely.
- Insert front axle bolt through front wheel. Place cupped washer on axle bolt (crowned side against the wheel). Insert axle bolt into pivot bar, using the corresponding hole. Tighten securely. See Figure 7.
- Assemble the other side in the same manner.

Installing Rear Wheels and Axle Shaft

If the rear wheels of the mower are not already assembled, proceed as follows.

- Block the rear of the mower up securely.
- Move rear cutting height adjusters to the highest position.
- The rear axle shaft has a right side and a left side. The right side has two tabs and the left side has one tab. See Figure 8.

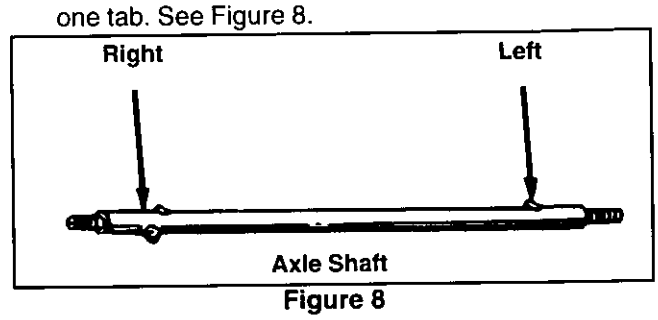


Figure 8

IMPORTANT: There are two holes on the pivot bar. You will have to attach the axle shaft through the top hole of the right pivot bar when installing 16" diameter wheels, and through the bottom hole when installing 14" diameter wheels. Use the same corresponding holes on the left pivot bar. See Figure 9.

- Slide the left side of the rear axle shaft through the right pivot bar (pivot bar with keyed hole). See Figure 9.

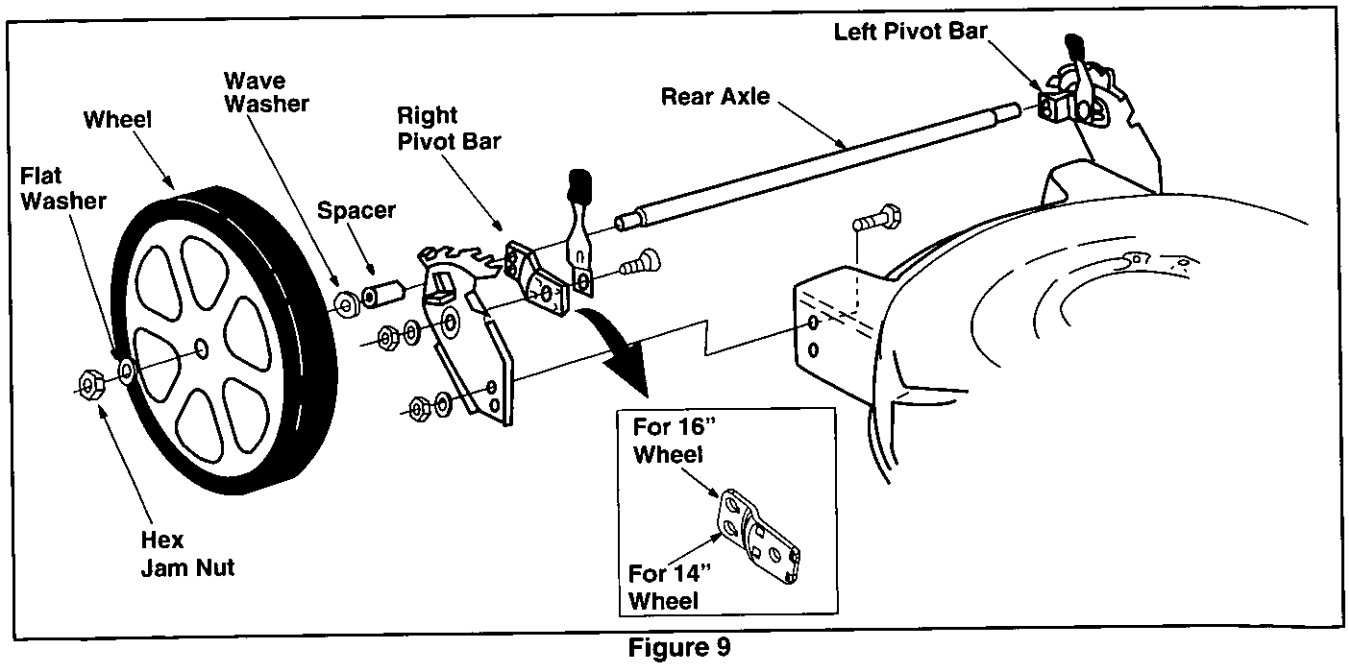


Figure 9

- Rotate the axle shaft until first tab on the right side of the axle shaft clears the hole in the right pivot bar. Rotate further until second tab on the right side of the axle shaft locks into the hole in the same pivot bar. The tab on the left side of the axle shaft should hit on the surface of the left pivot bar.
- Place one spacer on the rear axle, then one wave washer.
- Place wheel assembly on end of axle. Secure with one flat washer and one hex jam nut. Tighten securely.
- Repeat above steps to assemble the other wheel and then place all four height adjusters in the same relative position.

Attaching Struts (If Equipped)

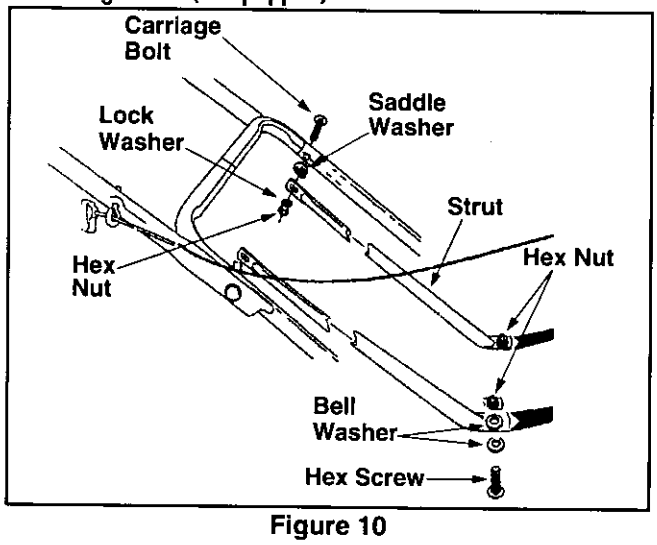


Figure 10

- Once the upper handle is secured, removed the wing nut from one side of the of the handle and discard. See Figure 10.
- Holding the carriage bolt that is already placed on the handle, place saddle washer, and then strut over the carriage bolt.
- Place the lock washer and the hex nut over the bolt threading only a few turns, just enough to hold the handle.
- Repeat on other side.

Attach the other end of struts as follows:

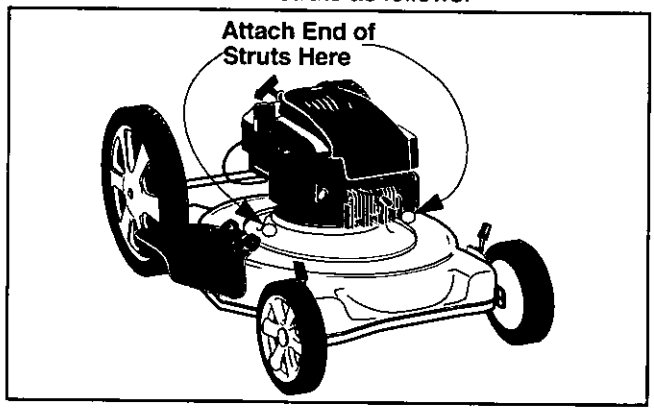


Figure 11

- Place one flat washer over carriage bolt.
- Insert carriage bolt up through hole in deck beside the engine and through the strut. Secure with lock washer and hex nut from the hardware pack. Repeat step on the other side. See Figure 11.
- Tighten all nuts and bolts on both ends of the strut securely.

Removing Chute Retainer

The chute deflector on your mower is held in an upright position by a retainer for shipping purposes only. Remove the retainer, following steps below, before running the mower for the first time.

- Push the chute deflector up and towards the engine. Holding the deflector in this position, remove the retainer. See Figure 12.
- Lower the chute deflector carefully to its operating position keeping your fingers out of the way.

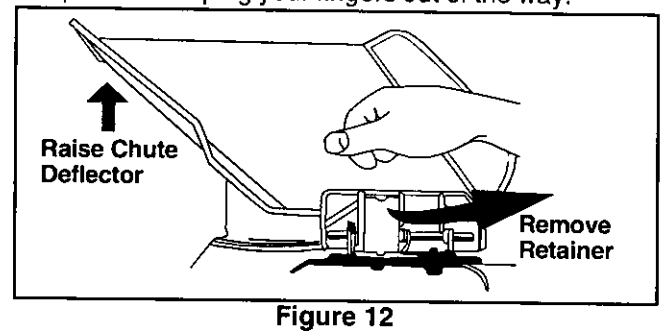


Figure 12

WARNING: The chute retainer must be removed and discarded before operating the mower.

Installing Mulching Baffle

If your mower is equipped with the optional mulching baffle, install it following instructions below.

- Insert the mulching baffle so that the notches at the bottom of the baffle sit firmly on the lip of the deck opening. See Figure 13.
- Slide the hooks of the baffle over the hinge pin on the discharge chute. Make sure that the hooks snaps into place, locking the mulching baffle firmly on to the mower.
- Release the chute deflector.

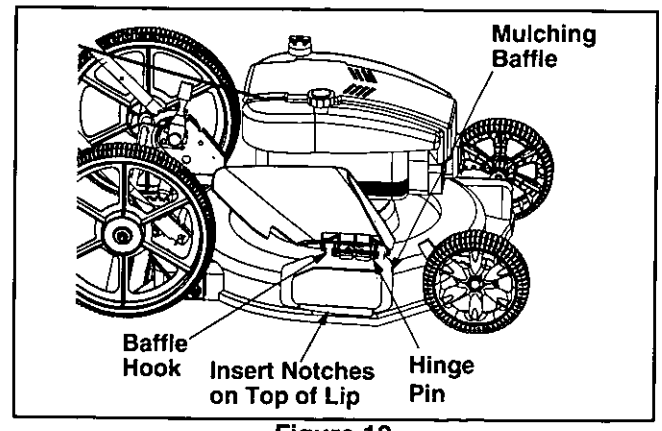


Figure 13

SECTION 5: KNOW YOUR LAWN MOWER

Read this owner's manual and safety rules before operating your lawn mower. Compare the illustrations in Figure 14 with your lawn mower to familiarize yourself with the location of various controls and adjustments. Save this manual for future reference.

WARNING: The operation of any lawn mower can result in foreign objects being thrown into the operator's eyes and causing severe eye damage. Always wear safety glasses while operating the mower, or while performing any adjustments or repairs on it.

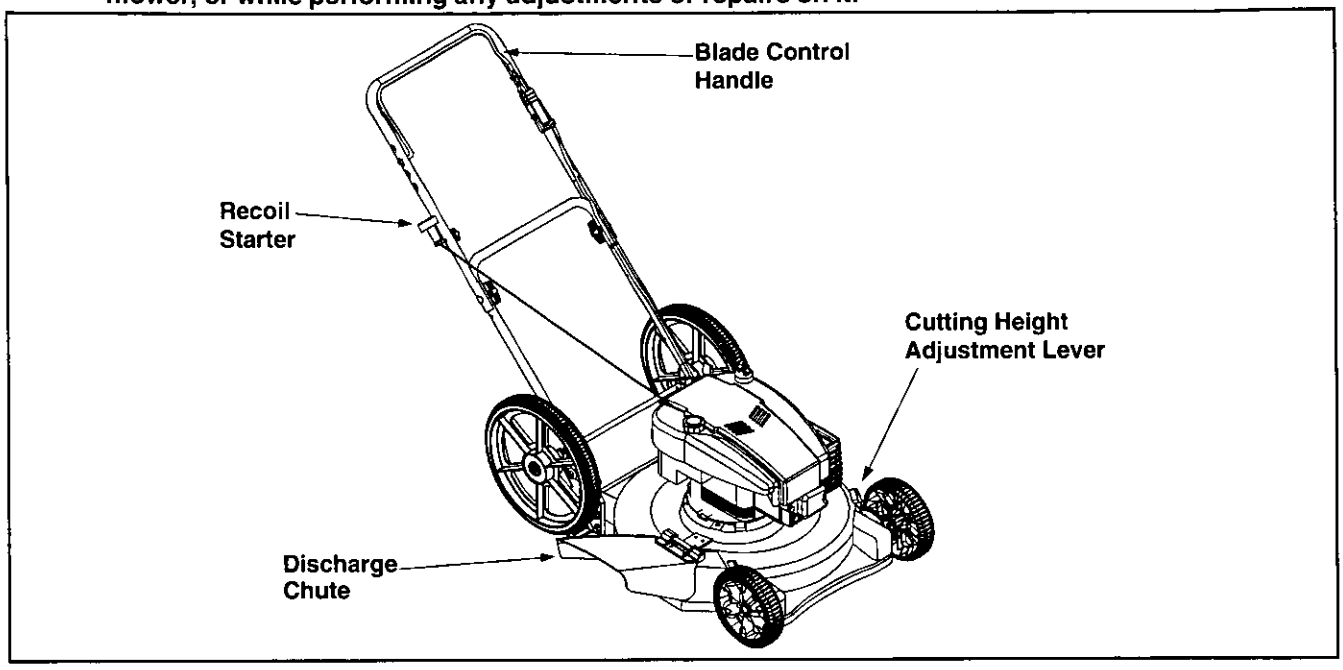


Figure 14

Recoil Starter

The recoil starter is attached to the right lower handle.

Stand behind the unit and pull the recoil starter to start the unit. See Figure 14.

Blade Control Handle

The blade control handle is located on the upper handle of the mower. The blade control handle must be depressed in order to operate the unit. Release blade control handle to stop engine and blade.

WARNING: This blade control mechanism is a safety device. Never attempt to bypass its operations.

Cutting Height Adjustment Lever

These levers are located on each front wheel and are used to adjust the cutting height. Both levers have to be at the same relative position to ensure uniform cut.

Engine Controls

See the separate engine manual for the location and function of the controls on the engine.

Stopping Engine

- Release blade control handle to stop the engine and the blade.
- Disconnect spark plug wire and ground it to a bolt on the engine.

WARNING: Before using your lawn mower, again refer to the Safety Section in this manual. Always be careful.

SECTION 6: OPERATING YOUR LAWN MOWER

Towards Better Mower Performance

1. Read this manual in its entirety before you start the lawn mower. Instructions given here have been designed for maintaining safety while getting the best performance from your mower. Follow the instructions closely.
2. Pour fresh, clean gasoline into the mower's gas tank until the tank is full. Do not use gasoline that is more than 30 days old.
3. Always use a fuel stabilizer. It will double the life of the gasoline used.
4. Make sure to connect the mower's spark plug wire before trying to start the engine.
5. Add engine oil to the oil fill on the mower engine. Check the dipstick and add more if necessary. Remember that the oil level has to touch the fill line.
6. Locate the primer decal near the primer bulb on the engine, and read its instruction. Using your thumb, press the primer bulb slowly as many times as the decal advises.
7. Hold control handle down and pull rope firmly to start the engine.
8. Set cutting height adjustment lever to middle setting and mow a single pass on your lawn; then adjust to desired height for a closer cut.
9. When bagging the grass clippings, remove mulch plug/cover and store.
10. To mulch insert the mulch plug/cover on the mower.
11. In heavy growing season, it may be necessary to mow lawn twice weekly. Clumps of grass clippings left behind on the lawn usually means that the grass is too high to mulch.
12. Before storing the lawn mower for the winter, use stabilizer-treated fuel and run the tank dry.
13. Thirty days before start of the new season, check the air filter, spark plug and blade on the lawn mower, and replace if needed.

For more details about proper lawn care, visit our website at www.mtdproducts.com/machines/tips

WARNING: Keep hands and feet away from chute area on the cutting deck. The operation of any lawn mower can result in foreign objects being thrown into the eyes, which can result in severe eye damage. Always wear safety glasses or eye shields.

NOTE: *For shipping purposes your mower is set with the wheels in a low cutting height position. For best results raise the cutting position until it is determine which height is best for your lawn. See the Adjustment Section for details.*

Gas and Oil Fill-Up

Service the engine with gasoline and oil as instructed in the separate engine manual packed with your mower. Read instructions carefully.

WARNING: Never fill fuel tank indoors with engine running or until the engine has been allowed to cool for at least two minutes after running.

Starting Engine

- Attach spark plug wire to spark plug. Make certain the metal cap on the end of the spark plug is fastened securely over the metal tip on the spark plug.
- Prime engine as instructed in the separate engine manual packed with your unit.
- Your lawn mower may be equipped with a constant speed throttle, which is set at full throttle for best performance.
- Stand behind the mower and squeeze the blade control handle against the upper handle.
- Grasp recoil starter handle and pull rope out slowly until engine reaches the start of compression cycle (rope will pull slightly harder at this point). Let the rope rewind slowly. Pull rope with a rapid, continuous, full arm stroke. Keeping a firm grip on the starter handle, let the rope return to the starter slowly.

Using Your Lawn Mower

Be sure that the lawn is clear of stones, sticks, wire, or other objects which could damage the lawn mower or the engine. Such objects could be accidently thrown by the mower in any direction and cause serious personal injury to the operator and others.

For best results, do not cut wet grass because it tends to stick to the underside of the mower, preventing proper discharge of grass clippings, and could cause you to slip and fall. New grass, thick grass, or wet grass may require a narrower cut.

For a healthier lawn, never cut off more than one-third of the total length of the grass. Your lawn should be cut in the fall as long as there is growth. This mower is designed to be operated at full throttle to give you the best cut and do the most effective job of mowing or mulching.

WARNING: If you strike a foreign object, stop the engine. Remove wire from the spark plug, thoroughly inspect the mower for any damage, and repair the damage before restarting and operating the mower. Extensive vibration of the mower during operation is an indication of damage. The unit should be promptly inspected and repaired.

Mulching

For effective mulching, do not cut wet grass because it tends to stick to the underside of the deck, preventing proper mulching of grass clippings. New or thick grass may require a narrower cut. The ground speed should be adjusted to the condition of the lawn. If mowing has been delayed and the grass has been allowed to grow in excess of 4", mulching is not recommended. Mow using the side discharge to reduce the grass height to 3 1/4" maximum before mulching.

SECTION 7: MAKING ADJUSTMENTS

WARNING: Do not at any time make any adjustments without first stopping engine and disconnecting spark plug wire.

Cutting Height Adjustment

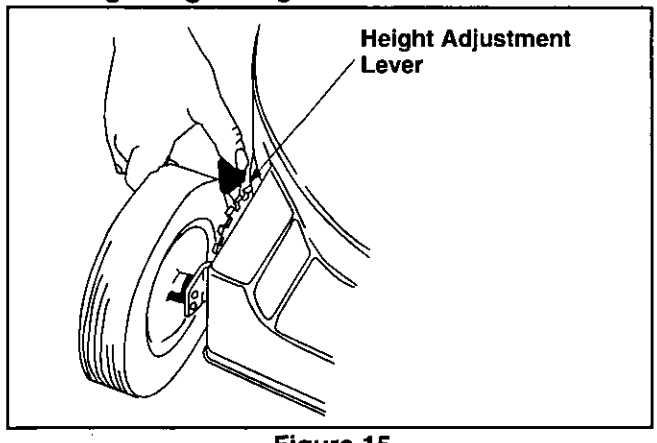


Figure 15

An adjusting plate and spring lever at each wheel position provides cutting height adjustment. Each adjusting plate has nine height positions. When the spring lever is moved from one location to another the height of cut will be changed. Simply depress the lever towards wheel and move lever assembly to desired position. See Figure 15.

IMPORTANT: All wheels must be placed in the same relative position. For rough or uneven lawns, move the height adjustment lever to a higher position. This will help stop scalping of the grass.

Handle Height Adjustment

Your mower is shipped with the handle in the higher height position. To lower the height proceed as follows:

- Remove the starter rope from the rope guide.
- Remove the upper handle by removing the hand knobs and carriage bolts. Lay the upper handle out of the way, being careful not to bend or kink the cables.
- Remove the hairpin clips from the weld pins on the handle brackets. Press out on the legs of the lower handle. Remove lower handle from the mower.
- Turn lower handle around so the notch on the bottom of the lower handle is facing forward. Reassemble, placing the bottom holes in the handle over the weld pins in the handle mounting bracket. See Figure 16.
- Reassemble the upper handle to the lower handle.
- Place the hairpin clips in the inner holes in the weld pins and attach the starter rope as instructed in the Assembly Section.

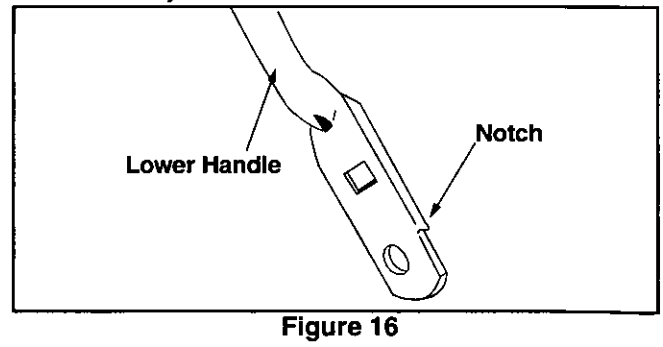


Figure 16

Engine Adjustments

See the separate engine manual packed with your unit for adjustments to the engine.

SECTION 8: MAINTAINING YOUR LAWN MOWER

General Recommendations

- Always observe safety rules when performing any maintenance.
- The warranty on this lawn mower does not cover items that have been subjected to operator abuse or negligence. To receive full value from the warranty, operator must maintain the lawn mower as instructed in this manual.
- Changing of engine governed speed will void engine warranty.
- Some adjustments will have to be made periodically to maintain your unit properly. All adjustments in the Making Adjustments section of this manual should be checked at least once each season.
- Periodically check all fasteners and make sure these are tight.
- Follow the maintenance schedule under Customer Responsibilities to get quality performance from your lawn mower.

Customer Responsibilities

	MAINTENANCE SCHEDULE	After each use	Every 25 hours	Every 50 hours	Every 100 hours	Once a season	Before storage	SERVICE DATES				
PRODUCT	Lubricate wheels					✓						
	Lubricate blade control					✓						
	Clean deck	✓					✓					
	Blade care		✓				✓					
ENGINE	Change oil		✓				✓					
	Replace air filter				✓							
	Clean engine	✓					✓					
	Check spark plug			✓		✓						
	Check spark arrester (if any)			✓								

Lubrication

Always stop engine and disconnect spark plug wire before cleaning, lubricating or doing any kind of service work on the lawn mower.

Blade Control: Lubricate the pivot points on the blade control handle at least once a season with light oil. The blade control must operate freely in both directions. See Figure 17.

Wheels: Lubricate the wheels at least once a season with light oil (or motor oil). If the wheels are removed for any reason, lubricate the surface of the axle bolt and inner surface of the wheel with light oil. See Figure 17.

Engine: Follow the separate engine manual packed with you unit for lubrication instructions.

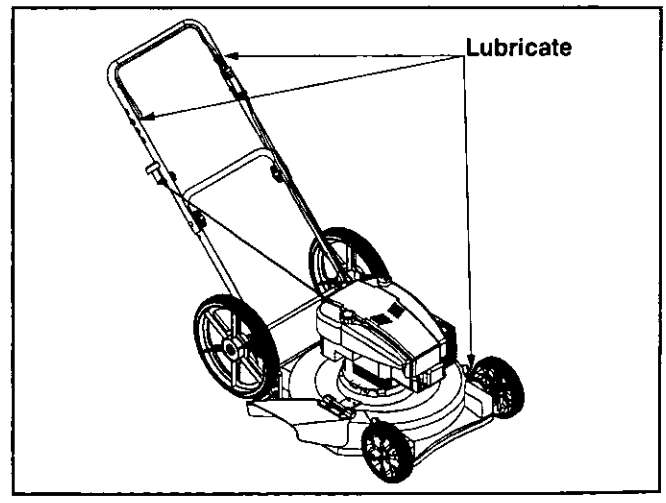


Figure 17

Maintenance

NOTE: *When tipping the unit, empty the fuel tank and keep the spark plug side of engine up. Never tip the mower more than 90 degrees and do not leave the mower tipped for any length of time. Oil can drain into the upper part of the engine causing a starting problem.*

Engine

Refer to the separate engine manual for all engine maintenance instructions.

- Maintain engine oil as instructed in the separate engine manual packed with your unit.
- Service air cleaner every 25 hours under normal conditions. Poor engine performance and flooding usually indicate that the air cleaner should be serviced. To service the air cleaner, refer to the separate engine manual packed with your unit.
- The spark plug should be cleaned and the gap reset once a season. Spark plug replacement is recommended at the start of each mowing season.

Clean the engine regularly with a cloth or brush. Keep the cooling system (blower housing area) clean to permit proper air circulation which is essential to engine performance and life. Be certain to remove all grass, dirt, and combustible debris from muffler area.

Deck

The underside of the mower deck should be cleaned after each use to prevent a buildup of grass clippings, leaves, dirt, or other matter. If this debris is allowed to accumulate, it will invite rust and corrosion, and may prevent proper mulching, discharge, or bagging. The deck may be cleaned by tilting the mower and scraping clean with a suitable tool (make certain the spark plug wire is disconnected).

IMPORTANT: We do not recommend the use of a pressure washer or garden hose to clean your unit. The use of water will result in shorten life and reduce serviceability.

Cutting Blade Removal, Replacement, and Sharpening

- When removing the cutting blade for sharpening or replacement, protect your hands with a pair of heavy gloves or use a heavy rag to hold the blade.
- Remove the bolt and the blade bell support which hold the blade and the blade adapter to the engine crankshaft. See Figure 18.
- Remove the blade and the adapter from the crankshaft.

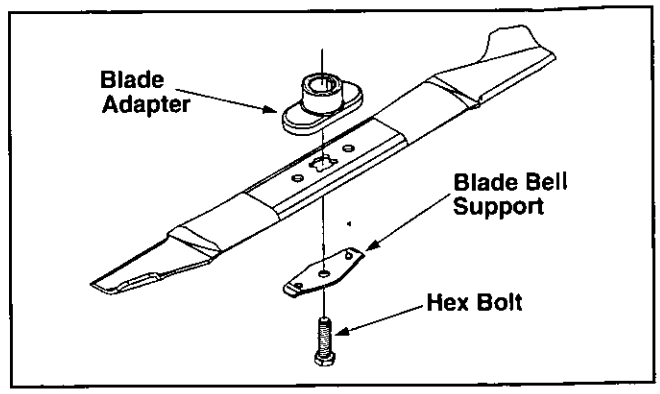


Figure 18

WARNING: Periodically inspect the blade adapter for cracks, especially if you strike a foreign object. Replace when necessary.

When sharpening the blade, follow the original angle of grind as a guide. It is extremely important that each cutting edge receives an equal amount of grinding to prevent an unbalanced blade. An unbalanced blade will cause excessive vibration when rotating at high speeds. It may cause damage to the mower, and could break causing personal injury.

The blade can be tested by balancing it on a round shaft screwdriver. Remove metal from the heavy side until it balances evenly. It is recommended that the blade always be removed from the adapter when testing for balance. Before reinstalling the blade and the blade adapter to the unit, lubricate the engine crankshaft and the inner surface of the blade adapter with light oil.

- Be sure to install the blade with the side of the blade marked "Bottom" (or with part number) facing the ground when the mower is in the operating position.
- Slide the blade adapter onto the engine crankshaft.
- Place the blade on the adapter. Be certain the blade is aligned and seated on the blade adapter flanges.
- Place blade bell support on blade. Make sure the notches on the blade bell support are aligned with small holes in the blade.
- Replace hex bolt and tighten hex bolt to torque: 450 in. lbs. min., 600 in. lbs. max.

NOTE: *To ensure safe operation of your mower, the blade bolt must be checked periodically for correct torque.*

SECTION 9: STORING YOUR LAWN MOWER

The following steps should be taken to prepare your lawn mower for storage.

- Clean and lubricate mower thoroughly as described in the lubrication instructions.

IMPORTANT: We do not recommend the use of a pressure washer or garden hose to clean your unit. The use of water will result in shorten life and reduce serviceability.

- Refer to engine manual for correct engine storage instructions.
- Coat mower's cutting blade with chassis grease to prevent rusting.
- Store mower in a dry, clean area. Do not store next to corrosive materials, such as fertilizer.

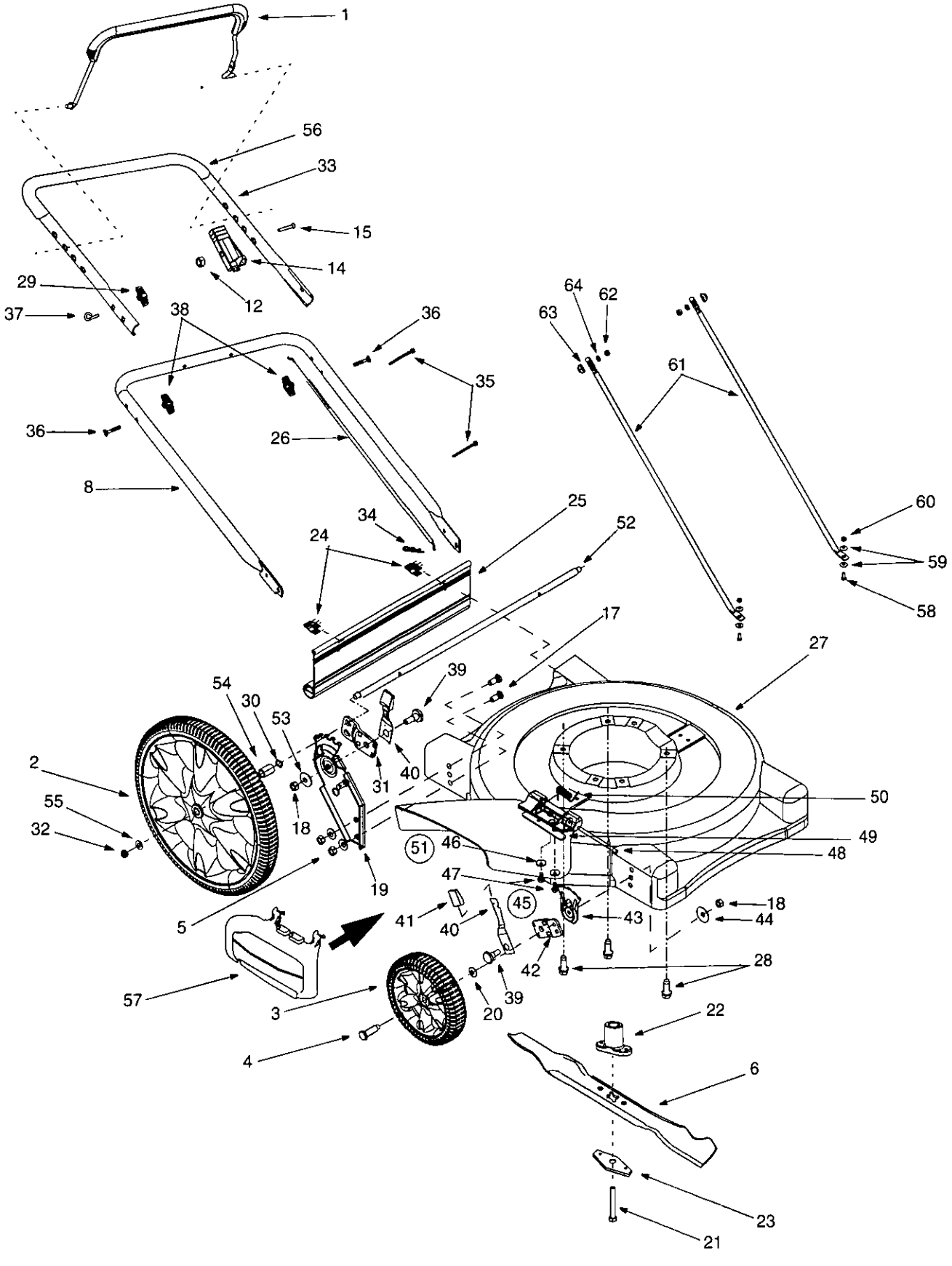
NOTE: *When storing any type of power equipment in a poorly ventilated or metal storage shed, care should be taken to rust-proof the equipment. Using a light oil or silicone, coat the equipment, especially cables and all moving parts.*

SECTION 10: TROUBLESHOOTING

Problem	Cause	Remedy
Engine fails to start	1. Blade control handle disengaged. 2. Spark plug wire disconnected. 3. Fuel tank empty or stale fuel. 4. Blocked fuel line. 5. Faulty spark plug. 6. Engine flooded	1. Engage blade control handle. 2. Connect wire to spark plug. 3. Fill tank with clean, fresh gasoline. 4. Clean fuel line. 5. Clean, adjust gap, or replace. 6. Wait a few minutes to restart, but do not prime.
Engine runs erratic	1. Spark plug wire loose. 2. Blocked fuel line or stale fuel. 3. Vent in gas plugged. 4. Water or dirt in fuel system. 5. Dirty air cleaner. 6. Carburetor out of adjustment.	1. Connect and tighten spark plug wire. 2. Clean fuel line; fill tank with clean, fresh gasoline 3. Clear vent. 4. Drain fuel tank. Refill with fresh fuel. 5. Clean air cleaner. 6. Adjust carburetor.
Engine overheats	1. Engine oil level low. 2. Air flow restricted. 3. Carburetor not adjusted properly.	1. Fill crankcase with proper oil. 2. Remove blower housing and clean. 3. Adjust carburetor.
Occasional skip (hesitates) at high speed	1. Spark plug gap too close.	1. Adjust gap to .030".
Idles poorly	1. Spark plug fouled, faulty or gap too wide. 2. Carburetor improperly adjusted. 3. Dirty air cleaner.	1. Reset gap to .030" or replace spark plug. 2. Adjust carburetor. 3. Clean air cleaner.
Excessive vibration	1. Cutting blade loose or unbalanced. 2. Bent cutting blade.	1. Tighten blade and adapter. Balance blade. 2. Replace blade.
Mower will not mulch grass	1. Wet grass. 2. Excessively high grass. 3. Dull blade.	1. Do not mow when grass is wet; wait until later to cut. 2. Mow once at a high cutting height, then mow again at desired height or make a narrower cutting path. 3. Sharpen or replace blade.
Uneven cut	1. Wheels not positioned correctly. 2. Dull blade.	1. Place all four wheels in same height position. 2. Sharpen or replace blade.

NOTE: *For repairs beyond the minor adjustments listed above, contact your nearest authorized service dealer.*

Models 500-509



Models 500-509

Ref. No.	Part No.	Part Description	Ref. No.	Part No.	Part Description
1.	747-0824	Standard Control Handle	33.	749-0538D	Upper Handle
	647-0004	Deluxe Control Handle (Shown) †		749-0920A	Upper Handle †
	747-0615	Control Handle †	34.	714-0104	Internal Cotter Pin
2.	734-1864	Rear Wheel Bar Grey	35.	726-0240	Cable Tie
	734-1842	Rear Wheel Aero Grey	36.	710-1174	Curved Bolt 5/16-18 x 2"
3.	734-1987	Front Wheel Bar Grey	37.	710-1205	Rope Guide
	734-1841	Front Wheel w/ Plastic Bearing	38.	720-0314	Hand Knob
	734-1781	Front Wheel w/o Bearing	39.	738-0507B	Shoulder Bolt
4.	738-0102	Front Axle Bolt	40.	732-0404	Spring Lever Assembly
5.	712-0328	Hex Nut 3/8-24	41.	720-0190	Knob
6.	742-0642	Standard Blade 22"	42.	15262B	Pivot Bar
	742-0742	Mulching Blade 22" †	43.	15261A	Height Adjuster Plate
8.	749-0928	Lower Handle	44.	736-0356	Bell Washer
14.	746-0883	Control Cable Housing	45.	14578	Front Height Adj Assembly - RH
15.	710-1270	Hex Screw 1/4-20 x 1.3		14579	Front Height Adj Assembly - LH
17.	710-0793	Ribbed Neck Bolt 3/8-24 x .80	46.	736-0270	Bell Washer
18.	712-0798	Hex Nut 3/8-16	47.	710-0599	Hex Tap Screw 1/4-20 x .5"
19.	682-0518	Handle Bracket Ass'y - RH	48.	747-0710	Hinge Pin
	682-0517	Handle Bracket Ass'y - LH	49.	17032	Adapter Plate
20.	736-0105	Bell Washer	50.	732-0593	Torsion Spring
21.	710-1044	Hex Bolt 3/8-24 x 1.5"	51.	731-1034	Chute Deflector Ass'y
22.	748-0376C	Blade Adapter	52.	738-0878	Rear Axle
23.	736-0524A	Blade Bell Support	53.	736-0331	Bell Washer
24.	17098	Hinge Clip	54.	750-0151	Spacer
25.	731-1026	Rear Flap Ass'y	55.	736-3050	Flat Washer
26.	746-0550	Control Cable - 39"	56.	720-0295	Foam Grip †
	746-0737	Control Cable - 51"	57.	731-1386A	Mulching Baffle †
27.	682-0084	Deck Assembly 22"	58.	710-0751	Hex Bolt 1/4-20 x .620 †
28.	710-0654A	Hex Washer Screw	59.	736-0270	Bell Washer †
29.	720-0279	Handle Knob 1/4-20	60.	712-0287	Hex Nut 1/4-20 †
30.	736-0504	Wave Washer	61.	749-0939	Strut †
31.	782-0519A	Pivot Bar - LH	62.	712-0267	Hex Nut 5/16-18 †
	782-0520A	Pivot Bar - RH	63.	736-0451	Saddle Washer †
32.	712-3020	Hex Jam Nut 3/8-16	64.	736-0119	Lock Washer †

† If Equipped

MANUFACTURER'S LIMITED WARRANTY

The limited warranty set forth below is given by MTD PRODUCTS INC ("MTD") with respect to new merchandise purchased and used in the United States, its possessions and territories.

MTD warrants this product against defects in material and workmanship for a period of two (2) years commencing on the date of original purchase and will, at its option, repair or replace, free of charge, any part found to be defective in material or workmanship. This limited warranty shall only apply if this product has been operated and maintained in accordance with the Operator's Manual furnished with the product, and has not been subject to misuse, abuse, commercial use, neglect, accident, improper maintenance, alteration, vandalism, theft, fire, water or damage because of other peril or natural disaster. Damage resulting from the installation or use of any accessory or attachment not approved by MTD Products Inc. for use with the product(s) covered by this manual will void your warranty as to any resulting damages.

Normal wear parts or components thereof are subject to separate terms as follows: All normal wear part or component failures will be covered on the product for a period of 90 days regardless of cause. After 90 days, but within the two year period, normal wear part failures will be covered ONLY IF caused by defects in material or workmanship of OTHER component parts. Normal wear parts and components include, but are not limited to, belts, blades, blade adapters, grass bags, rider deck wheels, seats, snow thrower skid shoes, shave plates and tires. Batteries are covered by a 90-day limited replacement warranty.

HOW TO OBTAIN SERVICE: Warranty service is available, WITH PROOF OF PURCHASE THROUGH YOUR LOCAL AUTHORIZED SERVICE DEALER. To locate the dealer in your area, please check for a listing in the Yellow Pages or contact the Customer Service Department of MTD PRODUCTS INC by calling 1-800-800-7310 or writing to P.O. Box 368022, Cleveland, Ohio 44136-9722.

This limited warranty does not provide coverage in the following cases:

a. The engine or component parts thereof. These items carry a separate manufacturer's warranty. Please refer to the applicable manufacturer's warranty on these items.
b. Log splitter pumps, valves and cylinders have a separate one year warranty.
c. Routine maintenance items such as lubricants, filters, blade sharpening and tune-ups, or adjustments such as brake adjustments, clutch adjustments or deck adjustments; and normal deterioration of the exterior finish due to use or exposure.
d. MTD does not extend any warranty for products sold or exported outside of the United States of America, its possessions and territories, except those sold through MTD's authorized channels of export distribution.

No implied warranty, including any implied warranty of merchantability or fitness for a particular purpose, applies after the applicable period of express written warranty above as to the parts as identified. No other express warranty or guaranty, whether written or oral, except as mentioned above, given by any person or entity, including a dealer or retailer, with respect to any product shall bind MTD. During the period of the Warranty, the exclusive remedy is repair or replacement of the product as set forth above. (Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.)

The provisions as set forth in this Warranty provide the sole and exclusive remedy arising from the sales. MTD shall not be liable for incidental or consequential loss or damages including, without limitation, expenses incurred for substitute or replacement lawn care services, for transportation or for related expenses, or for rental expenses to temporarily replace a warranted product. (Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you.)

In no event shall recovery of any kind be greater than the amount of the purchase price of the product sold. Alteration of the safety features of the product shall void this Warranty. You assume the risk and liability for loss, damage, or injury to you and your property and/or to others and their property arising out of the use or misuse or inability to use the product.

This limited warranty shall not extend to anyone other than the original purchaser, original lessee or the person for whom it was purchased as a gift.

How State Law Relates to this Warranty: This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state.